The Position of the Construction Industry

Prepared in the Construction Economics Section, Marketing Research Division

DURING the past 3 years there have been important gains in construction activity and the improvement carried forward through the first quarter of 1937. The expansion in 1934 was due almost entirely to increases in public construction resulting from funds supplied by the Federal Government—largely loans and grants by the Public Works Administration. In 1935 public construction changed only slightly while private work increased substantially, particularly in residential building. In 1936 further increases in both private and public work resulted in a volume of construction for the year, approximating three-fourths of the average annual volume during the period from 1920 to 1930. The trends in public, private, and total construction activity since 1923 are indicated by figure 1.

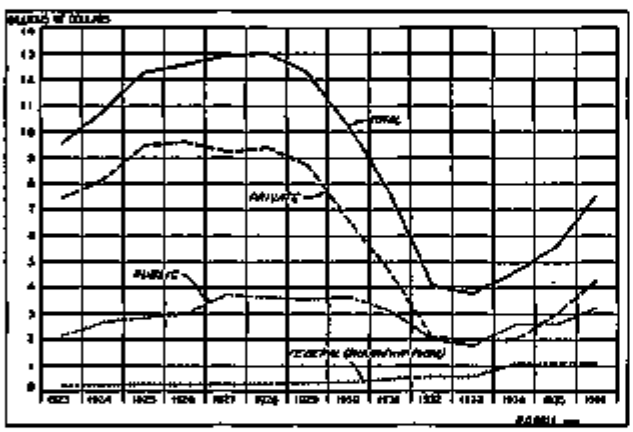

Figure 1.—Estimated Value of Total, Private, and Public Construction in the United States, 1923–36. (National Bureau of Economic Research and the United States Bureau of Foreign and Domestic Commerce.)

NOTE.—Total, private, and public construction, 1923–32, National Bureau of Economic Research (Gayer); figures for later years are preliminary estimates of the United States Bureau of Foreign and Domestic Commerce which are in the process of revision.

The variations in the amount of construction expenditures, which are discussed briefly in the following paragraphs, are of major significance because of the large number of persons employed directly and indirectly by construction, and also because of the effect of the expansion or curtailment of such activity upon general purchasing power. Outlays for durable goods may be expanded or contracted over long periods to a degree impossible in the case of nondurable goods such as food and clothing.

Residential Building.

Over long periods of time residential building averages one-fourth to one-third of the total volume of construction, but the proportion has been much less than this figure in recent years. The number of family units built during the period from 1920 to 1930 was approximately 700,000 annually in urban and rural nonfarm areas. The total dollar volume of residential work, including alterations, repairs, and maintenance, for the same period averaged between 3 and 4 billions of dollars annually. In 1933 and 1934 the number of new units built declined to approximately 60,000 annually, considerably less than the estimated requirements for replacements. As indicated in figure 2, this number has gradually increased during the past 2 years and may be estimated for 1936 to have been approximately 250,000 units. The expenditure for residential building, including alterations, repairs, and maintenance, as well as new construction in 1936, was probably in excess of 1¼ billions of dollars.

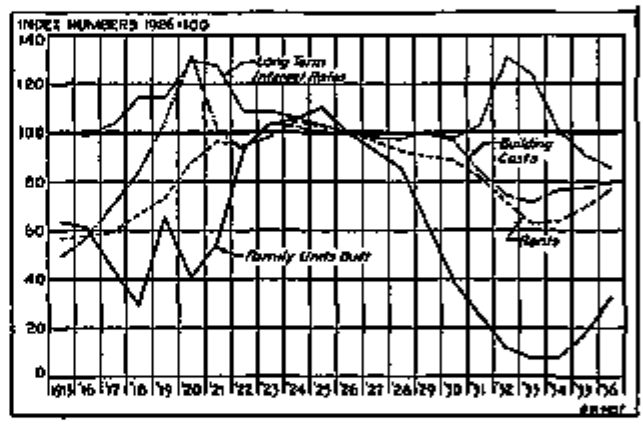

Figure 2.—Family Units Built, Rents, Building Costs, and Long Term Interest Rates, 1915–36. (Family Units Built, Construction Economics Section, United States Department of Commerce; Rents, National Industrial Conference Board; Building Costs, American Appraisal Company; and Long Term Interest Rates, Average of Yields on 15 Industrial and 15 Public Utility Bonds, Standard Statistics Company, Inc.)

The rent index in figure 2 is computed by the National Industrial Conference Board on the basis of month-to-month changes in new rentals, at present in 173 cities, and is particularly responsive to rent changes. This index reached a low point in January 1934 and has been rising steadily during the past 3 years.

Vacancy statistics, which are also an important measure of the residential market, began to record improvement somewhat earlier than rents. In 1932 vacancies in many cities were as much as 8 percent of the total number of dwelling units. This rate has been steadily declining, and in the latter part of 1936 was very low. The results of studies made in the fall and winter of 1936–37 are now available for several cities. These studies indicate substantial reductions from the preceding year. For all types of dwelling units percentage

vacancies, for example, in Denver declined during the past year from 1.8 to 1 percent, in Cleveland from 3 to 1.8 percent, in Seattle from 2.1 cent to 1.7 percent, and in Columbus from 2.7 to 1.7 percent. These changes are not unusual but are typical of the recent developments throughout the country. As a result of this increased demand a housing shortage is in prospect in many cities.

The present period of active demand for housing is in that respect similar to the years from 1919 through 1923. During the earlier period increases in interest rates and construction costs to high levels, as may be observed in figure 2, were accompanied by a curtailment of residential building. The trends in 1920 and 1921 should be noted particularly in this connection.

Commercial Building.

Commercial building improved slightly in 1934 and 1935 and advanced somewhat more rapidly in 1936. The gain in this type of construction in 1936 over the preceding year, according to the F. W. Dodge Corporation data covering 37 States, was over 50 percent. Commercial building, however, is still at comparatively low levels, 27 percent of the 1926 value, and vacancies are still high, 20.5 percent in January 1937, according to the reports of the National Association of Building Owners and Managers covering more than 2,000 buildings in 90 cities. The corresponding vacancy in 1924 to 1927 was approximately 9 percent; during this period commercial building was very active.

Factory Construction.

Factory building reached its low in 1932 at 9 percent of the 1926 value, according to the Dodge Corporation reports. The percentage increase in 1933 was large but this type of construction showed a slight decline in 1934 and no further important increases until 1936, in which year the Dodge figures indicated that factory building contracts were 82 percent larger than in the preceding year. In spite of these advances, the total dollar volume of factory construction in 1936 was only 42 percent of the 1926 average.

Table 1.—Construction Contract and Building Permit Relatives

(Dollar value 1926=100)

	1929	1932	1933	1934	1935	1936
Contracts awarded, F. W. Dodge Corporation:[1]						
Residential building	71.7	10.5	9.3	9.3	17.9	30.0
Factory building	115.8	9.2	27.1	24.0	23.1	42.0
Commercial building	106.9	13.3	16.9	16.4	17.9	27.1
Educational building	100.2	21.0	13.5	30.8	45.5	58.3
Public utility construction [2]	62.8	13.4	18.3	22.3	19.5	36.5
Building permits granted, Bureau of Labor Statistics:[3]						
Residential	63.6	4.6	4.0	3.4	9.4	21.0
Nonresidential	88.2	21.2	14.1	12.7	20.0	26.5
Contracts awarded, Engineering News-Record:						
Streets and roads	111.5	78.5	59.6	71.3	67.2	89.9
Sewers and waterworks	82.4	38.8	54.1	62.8	100.2	128.1

[1] Data are for 37 Eastern States.
[2] Includes municipal waterworks and governmental power plants.
[3] Data are for 257 identical cities.

Educational Building.

Public construction activity for the most part experienced a much smaller decline during the depression years than did private work. Educational building, however, although predominantly public, suffered a severe reaction in volume during 1932 and 1933, reaching a low in 1933 of 10.5 percent of the 1926 dollar total, according to the F. W. Dodge Corporation statistics. Public Works Administration funds in the 3 years following were responsible for a considerable revival in this type of construction. In spite of these gains, contracts awarded for educational buildings were slightly less in 1936 than in 1931 and were far short of the volume required to meet current needs. The increased responsibilities of educational institutions resulting from a larger number of children of school age than at any previous period in our history, as well as from a prolonged period of early education and increasing adult education, have greatly increased educational building and other equipment needs which have not been met even with the increased activity of the past 3 years.

Public Utility and Public Works Construction.

Total public utility construction of all types, including railroad, telephone, telegraph, and electric light and power construction, as well as waterworks which are included in this category by the F. W. Dodge Corporation, was, in 1936, approximately 36 percent of the 1926 average. The two major items which represent the largest part of the totals for utility construction are electric light and power plants and railroad construction (including transportation terminals). In each of these categories there was a substantial increase in the dollar value of contracts awarded in 1936 over the preceding year; light and power plants having more than doubled and railroad construction of all types having increased more than 80 percent. The outlays for electric light and power plants and distributing systems, although showing this striking increase in 1936 over the preceding year, are still at low levels, approximately 23 percent of the figure for 1926, which was a year of full activity, although considerably lower than the peak years of 1924 and 1930. The production of electrical energy, on the other hand, declined only moderately from 1930 to 1932 and at the present time is increasing rapidly. In 1936 it was larger than in any previous year.

As is well known the total volume of public construction has been maintained during the years from 1931 to date to a much larger degree than has private work. This is true in spite of the fact that the outlays of municipalities for construction declined greatly during the years from 1931 to 1933.

Total outlays of municipalities for all purposes, as measured by the reports to the Bureau of the Census from 146 cities, declined gradually from the peak in 1925 to 1930, then decreased very sharply to 1933, in

which year the total was approximately one-third of the 1930 volume. This decline has not been due to any substantial decrease in the net revenue receipts of municipalities but rather to the proportion of the receipts devoted to permanent outlays. As a matter of fact the revenue receipts for the 146 cities just mentioned were in 1931 slightly in excess of those for 1930 and have been maintained at fairly high levels during subsequent years. In the past municipal construction has usually constituted approximately one-half of the total of public construction. The sharp decline in this type of work from 1930 to 1933 has been offset in part by Federal Government construction.

In 1930 and 1931 public building was especially large. During the past 3 years there has been a substantial increase in the construction of highways, grade crossing eliminations, sewerage systems, dams for flood control, water supply systems, and governmental power plants and distributing systems. The two types of work which have been undertaken in the largest volume are streets and roads, and sewers and water works.

In 1936 the value of contracts awarded for the construction of streets and roads, as reported by the Engineering News-Record, was nearly 50 percent greater than during 1935 and was approximately equal to the 1926 level for this type of work. Sewers and waterworks experienced a moderate increase in 1936 over 1935 and appear to have been somewhat higher in the former year than in 1926. It should be observed, however, that both population and public responsibilities for the construction and maintenance of works of various kinds for public use have substantially increased during the past decade, and that 1926 should be considered only as a base for relative comparison rather than as having been a year of normal activity.

Construction Costs, Material Prices, and Wage Rates.

Construction costs appear to have risen rapidly in the fall of 1933 from the low levels of 1932 and early 1933. They were then fairly steady during 1934, 1935, and the early part of 1936. During the last few months of 1936, however, costs of all major elements of construction advanced. The wholesale prices of building materials, as reported by the Bureau of Labor Statistics, increased from 85.3 percent of the 1926 average in June to 89.5 percent in December 1936. Wage rates of both skilled and unskilled labor reported to the Engineering News-Record as actually paid by contractors in 20 cities, also rose appreciably, the latter to slightly above predepression levels. These movements are shown in figure 3.

Actual construction costs include many other items in addition to those shown in figure 3, such as the current charges on equipment, insurance, general overhead, and contractors' profits. The cost of materials plus labor, however, represents somewhat more than 80 percent of the total cost of most types of construction and usually dominates the year-to-year changes. Improvements in technical methods also affect important long-time trends in construction costs.

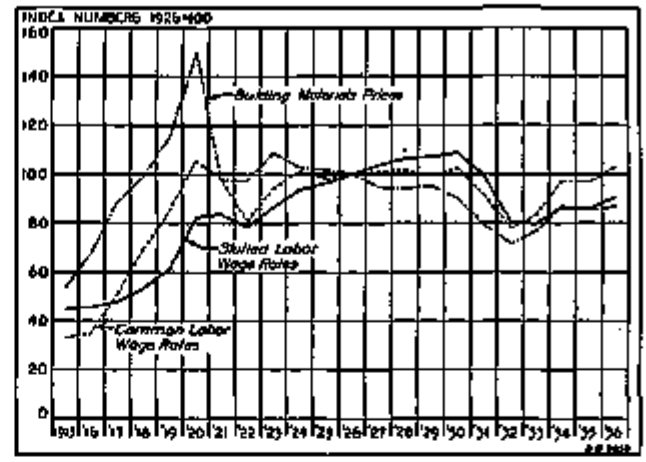

Figure 3.—Skilled Labor Wage Rates, Common Labor Wage Rates, and Building Material Prices, 1915–36. (Skilled and Common Labor Wage Rates, Engineering News-Record; and Building Material Prices, United States Department of Labor.)

Improved methods of construction have in the past tended to some extent to offset the increases in the basic costs of materials plus labor. This has been especially true in the construction of highways, levees, dams, and similar earth-handling projects, and has made possible many public works which could hardly have been undertaken without modern mechanical equipment. There has been some prospect that similar technical developments might influence residential building and thus offset the present upward trend in basic costs. Considerable experimentation was undertaken in 1935 and 1936 and some progress made. Residential building costs, however, have not thus far been greatly affected by technical factors tending to lowest costs and consequently have risen rapidly in recent months.

Recent Changes in Contracts and Costs.

In the opening quarter of 1937, several important developments in the construction field have occurred, notably a rapid advance in private construction and a further sharp increase in construction costs. The first 2 months of 1937 showed an increase in private construction of 96 percent over the corresponding 2 months of 1936, according to the reports of contracts awarded by the F. W. Dodge Corporation covering 37 Eastern States. Factory building recorded a particularly large gain—120 percent—and residential contracts more than doubled. Contracts for commercial buildings also increased substantially, although not so conspicuously as did those for factory and residential building. Public works contracts on the contrary declined 29 percent for the first 2 months of 1937 as compared with the corresponding period of 1936. In February they were valued at slightly more than $27,000,000 which was lower than in any month since the summer of 1933, with the exception of February and May 1935. Public

utilities showed some important gains, particularly in electric light and power plants and railroad construction.

Both building material prices and wage rates have risen even more rapidly so far this year than they did in 1936. The index of wholesale prices of building materials, as reported by the Bureau of Labor Statistics, has risen from 89.5 for December 1936 to 95.7 in the middle of March 1937. Both skilled and common labor wage rates reported by the Engineering News-Record as actually paid have also increased sharply during the past 2 months, common labor wage rates as of March 1, 1937, being 110 percent of the 1926 average, and skilled labor rates, 98 percent of the 1926 average. A rapid and sustained rise in costs might very well have important adverse effects upon some types of construction activity.

The current statistics on construction and real estate usually presented in the table on p. 9 are given in table 2.

Table 2.—Building Materials, Construction, and Real Estate

Year and month	Construction contracts awarded: Federal Reserve index adjusted [1]	Construction contracts awarded: All types of construction		Construction contracts awarded: Residential building		Construction contracts awarded: Public utilities	Construction contracts awarded: Public works	Building-material shipments: Common brick	Building-material shipments: Lumber	Building-material shipments: Oak flooring	Building-material shipments: Cement	Construction costs, Eng. News-Record [2]	Loans outstanding: Federal savings and loan associations [3]	Loans outstanding: Home-loan banks	Loans outstanding: Home Owners' Loan Corp. [4]	Real-estate foreclosures (nonfarm)
	Monthly average, 1923–25=100	Number of projects	Millions of dollars	Millions of square feet	Millions of dollars	Millions of dollars		Thousands	Mills. of ft. b. m.	Thous. of ft. b. m.	Thousands of barrels	Monthly average, 1913=100	Thousands of dollars			Monthly average, 1926=100
1929: February	116	9,749	301	37.8	129.6	37.6	29.7	....	....	31,128	5,448	210.4	....	....	....	....
1930: February	104	6,990	317	16.2	74.8	44.3	68.0	....	....	29,986	7,012	200.5	....	....	....	....
1931: February	79	7,020	235	16.0	77.9	19.6	60.3	....	....	21,713	6,074	196.6	....	....	....	....
1932: February	27	5,208	89	6.1	24.4	12.6	18.0	....	....	11,360	3,118	161.8	....	....	....	....
1933: February	19	3,694	63	3.1	11.8	4.7	12.5	....	....	6,074	2,278	159.8	....	9,184	....	....
1934: February	44	5,907	97	3.6	14.5	6.4	46.7	82,469	1,123	8,112	2,943	194.0	....	90,631	385,604	88.5
1935: February	38	6,135	75	4.0	16.6	3.9	23.9	86,291	1,330	9,014	2,941	196.0	107,980	76,636	2,468,744	94.7
1936:																
January	62	7,728	216	10.3	37.4	17.0	68.9	56,471	1,700	20,385	3,017	199.6	329,643	102,746	2,984,428	76.9
February	49	6,442	142	8.1	31.2	11.0	30.3	44,734	1,555	23,981	3,177	201.2	330,104	102,837	3,014,423	77.6
March	47	10,594	189	15.6	56.2	18.1	41.2	109,041	1,853	28,479	7,198	201.2	366,405	103,364	3,040,137	88.2
April	47	13,336	235	19.7	67.2	23.6	49.7	154,473	2,089	20,489	9,183	203.3	390,810	105,909	3,060,020	88.9
May	46	13,248	210	20.5	70.3	12.8	54.8	171,418	1,962	28,579	11,240	202.4	404,723	110,671	3,068,312	82.6
June	62	13,352	231	20.0	73.8	8.3	71.1	172,892	1,972	31,617	12,591	204.6	442,027	118,690	3,092,871	81.7
July	69	13,590	205	20.6	72.0	37.6	88.1	170,185	2,050	30,129	11,822	204.4	466,683	122,094	2,920,730	82.7
August	63	12,913	275	24.4	100.6	17.8	78.4	172,748	2,098	30,408	12,624	208.1	497,882	125,311	2,897,367	78.3
September	69	12,096	234	21.2	60.7	16.7	61.8	173,722	2,122	33,433	12,618	208.1	505,974	129,753	2,800,080	85.7
October	57	12,908	228	21.8	74.7	14.2	52.9	189,104	2,227	33,935	13,089	211.5	532,884	134,920	2,863,663	77.8
November	58	11,209	209	20.0	68.4	18.0	55.8	166,249	1,761	29,988	8,942	212.7	541,078	137,200	2,801,827	76.1
December	66	9,405	240	19.0	66.5	19.1	42.1	141,080	1,890	36,878	6,246	220.7	544,107	145,304	2,765,868	84.4
1937:																
January	63	8,731	243	16.4	78.4	21.8	40.7	107,777	1,722	38,847	4,678	223.5	570,290	143,728	2,711,451	68.1
February	64	9,746	188	16.7	69.0	32.4	27.3	....	2,047	34,801	6,163	223.5	603,039	141,198	2,680,230	....

[1] Based on 3-month moving average of values and adjusted for seasonal variation.
[2] Index is as of 1st of month; Mar. 1, 1937, 225.3.
[3] Data for 1935 and 1936 revised. See p. 20 of this issue.
[4] See footnote marked * on p. 26.